

Systems And Problem Solving-- Part 5

By Thomas Park

While interpreting data, there are two terms that should be discussed, as they are often confused with one another, but really are different.

They are: *correlation* and *causation*.

From wikipedia:

1. **Correlation:** In statistics, dependence or association is any statistical relationship, whether causal or not, between two random variables or bivariate data. Correlation is any of a broad class of statistical relationships involving dependence, though in common usage it most often refers to how close two variables are to having a linear relationship with each other.
2. **Causation:** . . . what connects one process (the cause) with another process or state (the effect), where the first is partly responsible for the second, and the second is partly dependent on the first.

If two variables have a linear relationship-- for example, more African American men are convicted of drug offenses than Caucasian men-- this represents a correlation. It means that, statistically, this is a relationship that has been shown to exist.

It does not, however, prove causality. For example, a drug offender need not be African American.

This is an especially interesting example, in that "conviction" is a legal term, and we can't be sure if more African American men are being wrongfully convicted of drug offenses-- ie whether methods of enforcement, or other variables, might come to play in the establishment of this relationship. Further, we can't be sure if, in fact, increased poverty in the African American community, or other variables that we haven't considered, might not be the causal link when it comes to convictions of drug offenses.

You can see how important this can become. It may be true about the conviction statistic, in a correlative sense. But, when you hear people saying, "He's black-- he's probably a drug dealer", that takes the correlation and tries to apply causality to it.

If you could prove that African Americans indeed are, because of race, more inclined to be drug offenders-- that the offences can be attributed, indeed, only to race, and not to other variables, such as poverty or enforcement, you might approach a causal relationship.

But this would be next to impossible.

To put it succinctly, it is often a temptation to make what is correlative seem causal. This is a mistake, for certain, and demonstrates sloppy and incorrect thinking.

